DOE joint Distributed Power and Industrial DG Program Review Meeting

CHP Installation at 29 Palms Marine Air Ground Combat Center

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Marine Corps Air-Ground combat Center (MCAGCC) at 29 Palms

- Links to DER Strategy:
  - Encourage CHP in federal facilities
  - To support the Executive Branch mandate to lower federal facilities' energy use in a manner that also reduces air emissions.

Marine Corps Air-Ground combat Center (MCAGCC) at 29 Palms

- Project Objectives:
  - **To create a "living model" for the other federal facilities as well as other public sector operators and some commercial/industrial businesses.**
  - **To gain recognition of commercial cost-effective application of CHP technology among federal government, energy service providers and equipment providers.**
  - **To demonstrate effective collaborations among DOE, DOD, Energy Service Performance Contractors (ESPC), Regulated Public Utilities and the private sector to foster increased creative, cost-effective ways to accomplish federal environmental and energy policy initiatives.**

Marine Corps Air-Ground combat Center (MCAGCC) at 29 Palms

- The largest Marine Corps base in the world – ¾ the size of Rhode island, occupies about 932 miles of the Majave Dessert, located 60 miles NE of Palm Springs, Ca.,
- Home to over 10,000 military personnel, 10,200 family members, and 600 civilian employees.
- Includes over 1,400 structures
- Fastest growing base in the marine Corps

Marine Corps Air-Ground combat Center (MCAGCC) at 29 Palms

- Peak demand – 16.4 MW
- Avg. demand – 8.9 MW
- Annual electric usage ~ 78 MW-hr. -- $6,500,000
- Thermal usages provided by 3 x 900 HP boilers
  - 2.9 million therms annually
  - $780,000

CHP Project for (MCAGCC) at 29 Palms

- **SoCalGas preliminary site-specific economic cost feasibility study of a CHP system**
- **Included costs for electricity, natural gas, capital equipment, a maintenance contract, and financing**
  - **7 MW CHP**
  - **Estimated $6.8 million**
  - **Annual saving > $1.8 million, 3.8 years payback**
- **MCAGCC approval to proceed with the project is contingent on verifying cost estimates from detailed application engineering**

CHP Project for (MCAGCC) at 29 Palms

- **29 Palms CHP Advantages:**
  - **Reduces the power being supplied by the electric utility**
  - **Reduces the natural gas required to supply HTHW to the base**
  - **Supply critical electrical loads during outages**
  - **Provide power and HTHW during natural gas interruptions**
  - **Lower energy cost**
  - **Reduces overall air emissions (CO2 & NOx)**

Scope of Work & Progress to Date

- **Task 1: Project plan and schedule, kickoff meeting with DOE -- Completed**
- **Task 2: Site survey -- Competed**
- **Task 3: Load study and analysis -- Completed**
- **Task 4: Schematic design – Completed**
- **Task 5: Design development – 35% Engineering Design -- Completed**
- **Remaining design and construction is being financed by ESPC**

CHP Project Team

- **Marine Corps Air Ground Task Force Training Command (MAGTFTC)**
- **Naval Facilities Command, Port Hueneme (NAVFACCO)**
- **U.S. Naval Facilities Engineering Command, Southwest Division**
- **Oak Ridge National Laboratory**
  - **Hughes Patrick, Mike Holda, Warren Thompson, Keith Kline**
- **Southern California Gas**
  - **C&H Engineering**
- **Johnson Controls Inc. – Super ESPC**
  - **Emcor**

Wrap Up

- Only Had to Carry Design to 35% Completion to Achieve Objective of Site Committing to Implement CHP